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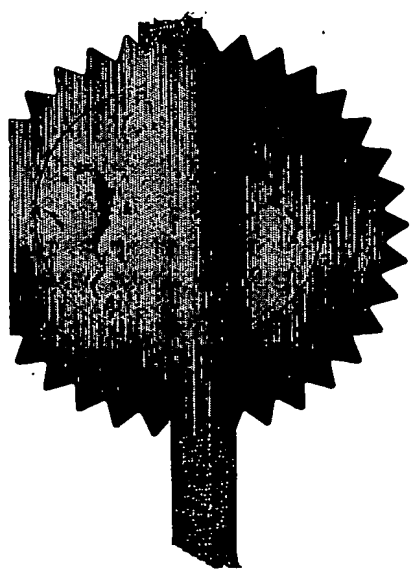
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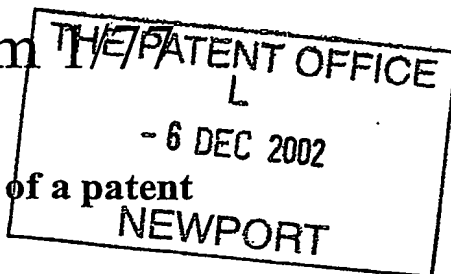
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# Patents Form 1



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## Request for grant of a patent

1. Your Reference **RJP/JFB/X987**

2. Application number **06 DEC 2002** **0228480.0**

3. Full name, address and postcode of the or each Applicant **Boots Healthcare International Limited**  
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**United Kingdom**

Country/state of incorporation (if applicable)

Incorporated in: **GB**

**08504136001**

4. Title of the invention **Measuring and dispensing device**

5. Name of agent **APPLEYARD LEES**

Address for service in the UK to which all correspondence should be sent **15 CLARE ROAD**  
**HALIFAX**  
**HX1 2HY**

Patents ADP number **190001**

6. Priority claimed to: Country Application number Date of filing

7. Divisional status claimed from: Number of parent application Date of filing

8. Is a statement of inventorship and of right to grant a patent required in support of this application? **YES**

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description 7

Claim(s) 2

Abstract 1 *2+1*

Drawing(s) 1+1

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Priority documents

Translation of priority documents

Statement of inventorship and right to grant a patent (PF 7/77)

Request for a preliminary examination and search (PF 9/77) ☒

Request for substantive examination (PF 10/77)

Any other documents (please specify)

- 11.

We request the grant of a patent on the basis of this application.  
Signature Date

APPLEYARD LEES

5 Dec. 2002

*Appleyard Lees*

12. Contact

R J Pidgeon- 01422 330110

### Measuring and dispensing device

The present invention relates to a device for measuring and dispensing liquid medicine.

5

One current device for measuring and dispensing liquid medicine is a graduated medicine spoon. This is cheap and compact but many users find it prone to spillage, and inconvenient to use.

10

A second measuring and dispensing device is a graduated cup. This is typically a substantially straight-sided cup with a transverse bottom wall. This is less prone to mess than the spoon but is prone to difficulties, nevertheless.

15 The straight-sided design means that it can be difficult to accurately assess the level of liquid against the graduations. Furthermore, there may be a considerable loss of viscous liquid medicines, retained on the inside surfaces of the cup. With the spoon, of course, the user  
20 typically uses the mouth parts to remove all the medicine. With the cup the user only receives the medicine which flows under gravity into the mouth.

In accordance with the present invention there is provided  
25 a measuring and dispensing device for attachment to the neck of a bottle of liquid medicine, the device comprising on one of its sides a socket formation by means of which it may be releasably attached to the neck of a bottle and on another side a concave formation for receiving liquid  
30 medicine.

Preferably the socket formation and the concave formation face in opposite directions. In use, with the bottle

still on its base, the socket formation faces downwards and the concave formation faces upwards, with the device being carried at the top of the bottle.

5 Preferably the neck of the bottle (which we mean to include the cap of the bottle) fits reasonably closely within the socket, sufficiently closely that it cannot easily be knocked from the neck of the bottle but not so closely that the measuring and dispensing device can be  
10 used to assist the removal of the cap. If this happened it would compromise any child-resistant property of the cap of the bottle.

However, embodiments in which the measuring and dispensing  
15 device is secured to a cap of the bottle in such a way that they can be turned together are not excluded. Such embodiments may be employed when it is desired to provide some assistance to overcome any child-resistance features, with the measuring and dispensing device providing a  
20 mechanical advantage, compared with the cap alone. Such assistance may be required by elderly persons, for example.

Furthermore, the measuring and dispensing device could  
25 serve as the cap of the bottle.

Preferably the measuring and dispensing device, when removed from the bottle, may be stood on a horizontal surface with the concave formation facing upwards, so that  
30 liquid medicine can be poured into it.

Preferably the measuring and dispensing device is of a plastics material, more preferably a thermoplastics

material. Especially suitable are polyolefins, for example polyethylene or, most preferably, polypropylene.

Preferably the measuring and dispensing device is  
5 manufactured by a moulding process, for example injection moulding.

Preferably the internal surface of the concave formation is graduated, most preferably with 2.5ml and/or 5ml  
10 graduations. Alternatively or additionally it may have a 10ml graduation and/or a 15ml graduation. Preferably the capacity of the concave formation is somewhat larger than the volume denoted by the highest graduation, so that, for a corresponding dose, it does not have to be filled to the  
15 top. Preferably its capacity is at least 8ml. Preferably, its capacity does not exceed 25ml, and preferably does not exceed 15ml. Most preferably it does not exceed 12ml.

20 Suitably the concave formation is circular, or, preferably, oval in plan view.

In certain embodiments the concave formation is without discontinuities on its internal surface. For example it  
25 contains no bumps, ridges or grooves marking the transition between one region of the surface and another, but preferably curves smoothly throughout its internal surface. In such embodiments any graduation is by means of in-the-plane surface marking, for example achieved by co-  
30 injection moulding.

In other embodiments any graduation is by means of one or more surface discontinuities, preferably one or more

ridges. When such is provided the concave formation is otherwise free of discontinuities on its internal surface.

5 Preferably the internal surface of the concave formation has a surface finish which does not tend to retain liquid medicine. For example the surface may by its chemical nature repel the liquid medicine. Alternatively, it may have a physical finish which has a similar effect. For example it may have a surface which is microscopically  
10 smooth. The surface may have a shiny finish, preferably achieved by the method of primary manufacture, for example by employing a highly polished mould.

In accordance with a second aspect of the present  
15 invention there is provided a bottle of liquid medicine, the neck of the bottle having fitted to it a measuring and dispensing device of the first aspect, as defined above.

In accordance with a third aspect of the present invention  
20 there is provided a method of dispensing liquid medicine from the device of the second aspect, the method including:

removing the measuring and dispensing device;

25

removing the cap (if separate) of the bottle; and

delivering the liquid medicine from the bottle into the measuring and dispensing device to the required amount.

30

The invention will now be further described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 shows the measuring and dispensing device of the present invention in side elevation;

5 Fig. 2 shows the device of Fig. 1 in plan view;

Fig. 3 is a sectional view of the device along line X-X in Fig. 2;

10 Fig. 4 is a sectional view of the device along line Y-Y in Fig. 2; and

Fig. 5 shows the device mounted on a bottle of liquid medicine, the bottle being shown in outline.

15

The measuring and dispensing device 2 has on one side a concave formation 4 and has on its other side a socket formation 6. The socket formation 6 is generally cylindrical. The concave formation 4 is smoothly concave, without any surface discontinuities. It has the form of a dish or shallow bowl, of volume 12ml. In plan view it is of oval shape, as can be seen in Fig. 2.

25 The measuring and dispensing device is made by injection moulding of polypropylene. The surface finish is very smooth and shiny and this is achieved by virtue of the material selected and the very smooth finish of the cavity of the mould employed in the manufacture.

30 On the internal surface of the concave formation there are in-the-plane graduation lines 8 and numbers indicative of 2.5ml and 5ml liquid volume levels. These are formed by co-injection during the moulding process.



The cylindrical wall of the socket formation terminates at its free end in a deep wavy edge 10, this edge defining three feet 12, 14, 16, with spaces between them.

5

The socket formation 6 is of size to fit reasonably closely over the cylindrical neck of a medicine bottle 18, so that there is little risk of the device falling from, and little risk of it being knocked from, the neck.

10 Removal of the device requires a lifting action. However there is no grip between the socket formation 6 and the neck (represented by the cylindrical cap 20) so the latter cannot be used, in this embodiment, as an aid for the removal of the cap from the bottle. Thus, the child-  
15 resistance of the cap is not compromised.

To measure and dispense medicine the device 2 is lifted from the neck to expose the cap. The cap 20 is removed from the bottle 18 in the usual way. Liquid medicine is  
20 poured from the bottle 18 into the concave formation of the device. During this operation the device may be resting on a horizontal surface, for example a worktop. Alternatively, if the user has a steady hand and prefers it, it may be held. Once the liquid has reached the  
25 required graduation line - an event which is easy to see due to the shape of the concave formation - it may be placed against and poured into the mouth. Very little liquid medicine should be left in the concave formation and so nothing further is necessary. However if the user  
30 does choose to remove any remaining liquid medicine from the surface of the concave formation using mouth parts, for example the upper lip or tongue, this is easy to do.

The bottle 18 is shown with a special shape but this is not material to the present invention. A bottle of any shape could be used, and of any suitable material, for example glass or plastics.

5

In a second embodiment the socket formation ends in a plain edge formed perpendicularly to the axis of the socket formation.

- 10 In a third embodiment the concave formation 6 is circular in plan view.

In a fourth embodiment the two in-the-plane graduation lines are absent, and instead there are two co-moulded  
15 ridges.

CLAIMS

1. A measuring and dispensing device for attachment to the neck of a bottle of liquid medicine, the device comprising on one of its sides a socket formation by means of which it may be releasably attached to the neck of a bottle and on another side a concave formation for receiving liquid medicine.
2. A device as claimed in claim 1, wherein the socket formation and the concave formation face in opposite directions.
3. A device as claimed in claim 1 or 2, wherein the device is stable when the socket formation rests on a horizontal surface.
4. A device as claimed in any preceding claim, wherein the concave formation is graduated on its internal surface.
5. A device as claimed in any preceding claim, wherein the internal surface of the concave formation has a surface finish which does not act to retain liquid medicine.
6. A bottle of liquid medicine, having a neck onto which is fitted the socket formation of a measuring and dispensing device as claimed in any preceding claim.

7. A bottle as claimed in claim 6, wherein the socket formation is a close but non-gripping fit on the neck.

5 8. A bottle as claimed in claim 7, wherein the socket formation is a close but non-gripping fit on the cap of the neck.

10 9. A method of dispensing liquid medicine from a bottle as claimed in any of claims 6 to 8, the method including:

removing the measuring and dispensing device;

15 removing the cap (if separate) of the bottle; and

delivering the liquid medicine from the bottle into the measuring and dispensing device to the required amount.

20 10. A measuring and dispensing device, or a bottle or method using same, substantially as hereinbefore described with reference to the accompanying drawings.

ABSTRACT

## Measuring and dispensing device

5 A measuring and dispensing device (2) for attachment to  
the neck of a bottle (22) of liquid medicine comprises on  
one of its sides a socket formation (6), by means of which  
it may be releasably attached to the neck of a bottle, and  
on another side a concave formation (4) for receiving  
10 liquid medicine.

Fig. 5

15

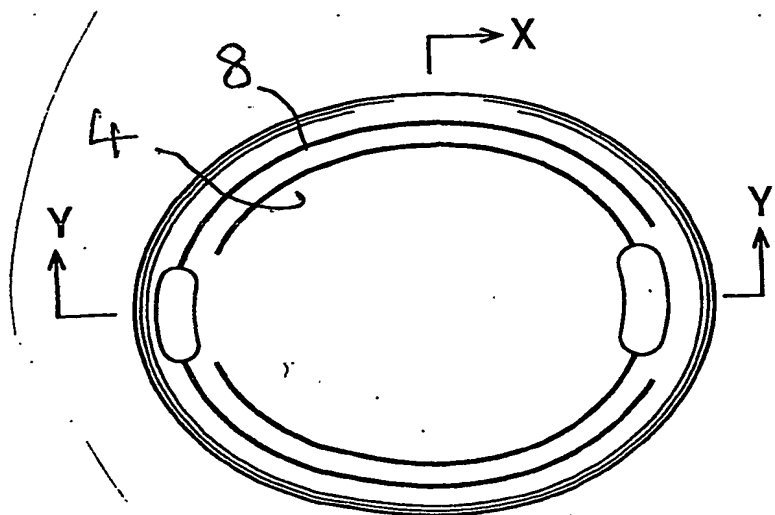


Fig. 2

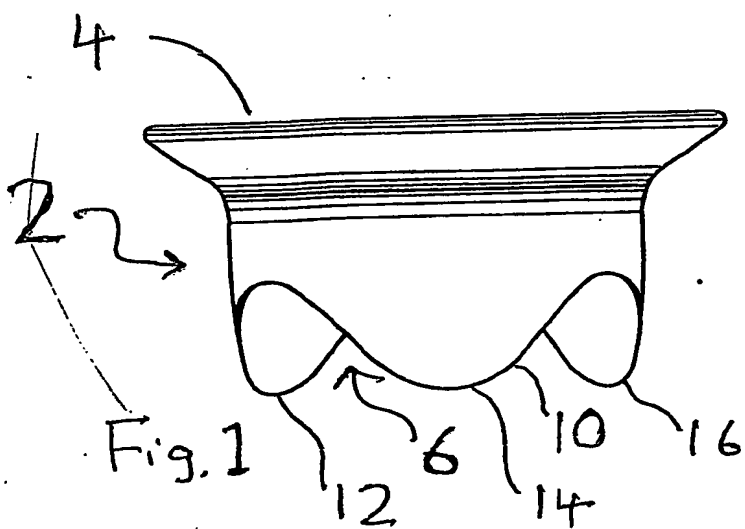


Fig. 1

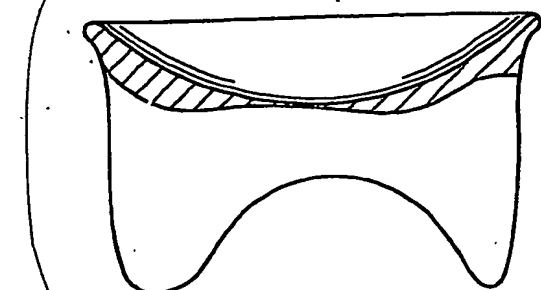


Fig. 3

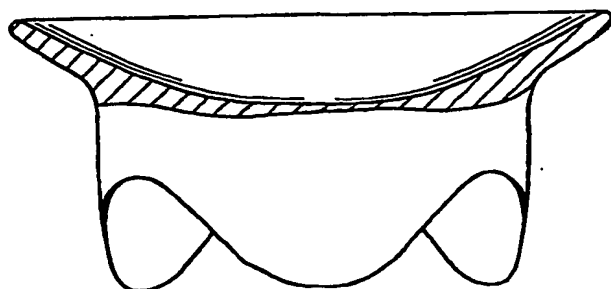


Fig. 4

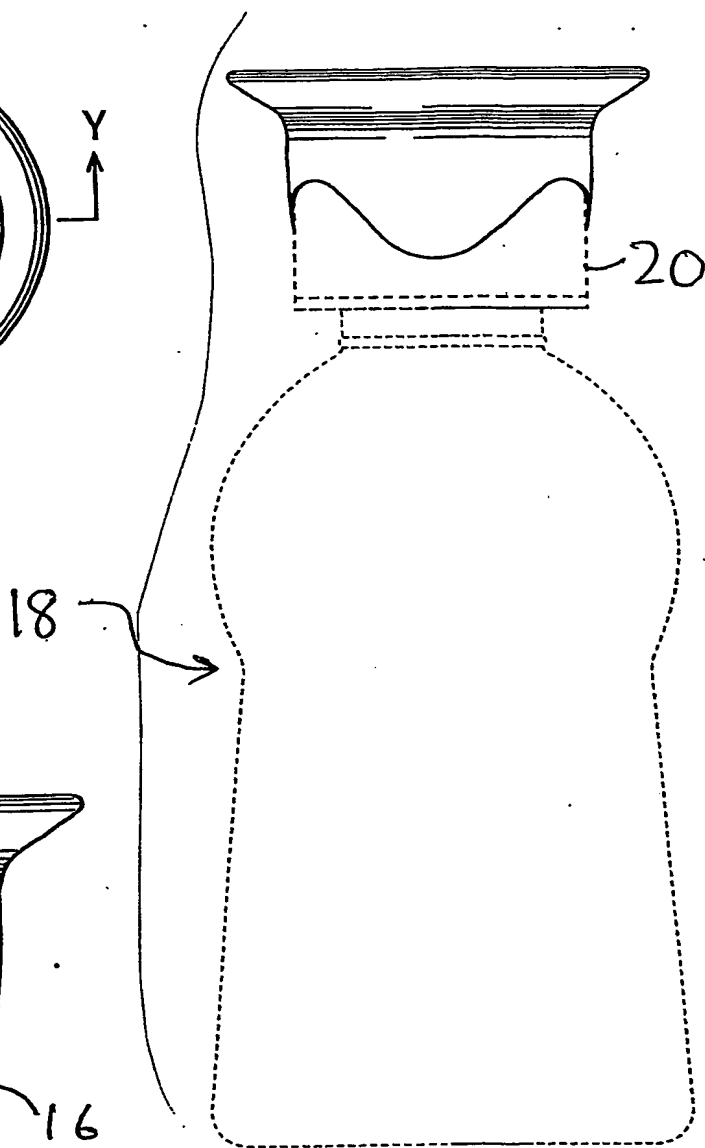


Fig. 5

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